in the direction of the control axis determined by protective bearings and an integral output of the unit when the rotary body is magnetically levitated in the vicinity of the other limit position.

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IN THE CLAIMS:

Please amend claims 1 and 2 as follows:

1. (Amended) A magnetic bearing device for magnetically levitating a rotary body by contactlessly supporting the body with magnetic attraction of pairs of electromagnets with respect to an axial direction and two radial directions orthogonal to each other and to the axial direction, the rotary body having movable ranges in the three supporting directions determined by mechanical restraining means, the magnetic bearing device comprising: a pair of electromagnets arranged to hold the rotary body at opposite sides thereof in the direction of each of control axes in the respective three supporting directions, means for detecting the position of the rotary body in the direction of the control axis and electromagnet control means having at least an integral operation unit for controlling the electromagnets based on the result of detection of the position by the position detecting means, the electromagnet control means comprising a target levitated position setting means for setting as a target levitated position of the rotary body in the direction of the control axis

the position of the rotary body corresponding to a median of an integral output which is the output of the integral operation unit when the rotary body is magnetically levitated in a vicinity of one of limit positions in the direction of the control axis determined by the mechanical restraining means and the integral output of the integral operation unit when the rotary body is magnetically levitated in a vicinity of the other limit position.

A2 Cont

2. (Amended) A magnetic bearing device according to claim 1, wherein the target position setting means is adapted to position the rotary body at said one limit position, thereafter magnetically levitate the rotary body in the vicinity thereof, obtain the integral output at this time to store the output as a first limit position integral output in a memory, gradually shift the magnetically levitated position of the rotary body toward said other limit position, determine the position of the rotary body every time the rotary body is so shifted by a small distance at a time and a corresponding integral output for storage as an intermediate position and an intermediate position integral output in the memory, move the rotary body to said other limit position, thereafter magnetically levitate the rotary body in the vicinity thereof, obtain the integral output at this time for use as a second limit position integral output, determine a median of the first limit position integral output and the second limit position

integral output, and select the output most proximate to a median from among the intermediate position integral outputs stored in the memory to determine the intermediate position corresponding to the selected intermediate position integral output as the target levitated position.